

REMARKS

The official action of 8 June 2009 has been carefully considered and reconsideration of the application as amended is respectfully requested.

Applicants affirm their election of the invention defined by claims 1-11. The remaining claims have been withdrawn. Certain of the withdrawn claims have been amended to facilitate their rejoinder upon the allowance of the elected product claims (see MPEP 821.04).

Specifically, claim 16 has been amended to correct a typographical error and claims 21 and 22 have been amended to refer to the correct (fifth) step. Thus, claim 21 has been amended in accordance with the disclosure in the specification at page 9, line 20 to page 10, line 17, which refers to “salting-out” for the separation of the fifth step (see, also, Example 6). Claim 22 has been amended in accordance with the disclosure at page 9, line 20 to page 10, line 17, which refers to “an organic solvent” for the separation of the fifth step. See, also, Examples 7 and 10, which exemplify precipitation from an organic solvent. Claim 23 has been amended to depend from claim 1 and thereby to facilitate its rejoinder upon allowance of claim 1. See MPEP 821.04.

Claim 1 has been amended to incorporate the recitations formerly in claim 2 (now canceled). This amendment is respectfully believed to remove the bases for the prior art rejections of record, as next discussed.

The claims stand rejected under 35 USC 102(b) and 35 USC 103(a) over the references and combinations of references applied in paragraphs 7-13 of the official action, but the only rejection of the subject matter formerly in claim 2 (now incorporated into claim 1) is the rejection under 35 USC 102(b) at paragraph 7 of the official action for alleged anticipation by Okabe. Applicants respectfully traverse this rejection.

As discussed above, claim 1 has been amended to incorporate the recitations formerly in claim 2, which requires the recited titanium dioxide to be in an anatase or rutile form. Surface modified anatase or rutile titanium dioxide fine particles according to the claimed invention have on the surface thereof a hydrophilic polymer through an ester linkage and, thus, have very good dispersibility in aqueous solvents even in a broad range of pH, including near-neutral pH. Further, a dispersion liquid of surface-modified anatase or rutile titanium dioxide particles utilizing this feature can use water- or salt-containing various pH buffer solutions as solvents and has very good dispersibility and stability. No such benefits and surface modification attaining the benefits are disclosed in Okabe or the other cited references.

Okabe discloses reacting an oxypolycarboxylic acid with a polyol compound and a complex alkoxide having a chemical bond of (-Ti-O-Al-O-Ti-) to provide a water-soluble composite carboxylic ester complex oligomer. The solution of the composite carboxylic ester complex oligomer is then sprayed and thermally degraded to produce a TiO₂ powder. Since the solution before the spraying and thermal degrading is "a water-soluble composite carboxylic ester complex oligomer" solution, "anatase or rutile titanium oxide" which is crystalline does not exist. In addition, the TiO₂ powder after the spraying and

thermal degrading is nothing but an inorganic compound, on/in which carboxylic acid or ester no longer exists. Accordingly, Okabe fails to disclose or suggest surface modified titanium dioxide fine particles as recited in claim 1 as amended.

None of the other cited references can supplement this deficiency in Okabe whereby no combination of references with Okabe would lead to the invention defined by the claims as amended comprising surface modified anatase or rutile titanium dioxide fine particles as claimed. For example, Perrin et al. discloses a film prepared by applying a sol prepared by adding water to a solution in which a polymer containing a carboxyl-group, titanium tetrabutoxide, and acetic acid are mixed with toluene, and drying the sol at 150°C for one hour (page 1018, the left column, line 30). Under such low temperature and ambient pressure, crystallization of titanium dioxide from the amorphous form to anatase form does not proceed. Indeed, Fig. 5 indicates that the titanium oxide in the film disclosed by Perrin et al. is basically amorphous, in view of the fact that the formation of a titanium oxide amorphous network is proved by the broad absorption band that appears from approximately 850 to 400 cm⁻¹ as described on page 1018, left column, lines 12-14 of the Perrin reference.

In view of the above, Applicants respectfully submit that the prior art rejections of record have been overcome and that the only rejection remaining in this application is a provisional double patenting rejection in view of co-pending application serial number 10/551,164. The co-pending application is a '371 of a PCT application that was filed 31 March 2004, the same day as the effective filing date of the present application, and the claims of the co-pending application recite, in addition to titanium dioxide fine particles,

another element, namely, a molecule with a binding capacity specific for a target molecule. In these circumstances, the provisional double patenting rejection in the present application should be withdrawn without the need for filing a terminal disclaimer. See MPEP 804(I)(B)(1) (“If both applications are filed on the same day, the examiner should determine which application claims the base invention and which application claims the improvement (added limitations). The ODP rejection in the base application can be withdrawn without a terminal disclaimer, while the ODP rejection in the improvement application cannot be withdrawn without a terminal disclaimer.”).

Accordingly, Applicants respectfully submit that all rejections and objections of record have been overcome and that the application is now in allowable form. An early notice of allowance is earnestly solicited and is believed to be fully warranted.

Respectfully submitted,

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